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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/305,722 05/05/99 BAD

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IM52/0925

EXAMINER

ALANKO, A
ART UNIT PAPER NUMBER

1746
DATE MAILED:

09/25/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/305,722

Applicant(s)

BAO ET AL.

Examiner

Anita K Alanko

Art Unit

1746

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 7/27/01 appeal brief.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-15 and 19-22 is/are pending in the application.
- 4a) Of the above claim(s) 13-15 and 20-22 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1,3-12 and 19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

In view of the appeal brief filed on 7/27/01, PROSECUTION IS HEREBY REOPENED.

A new grounds of rejection is set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

- (a) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,
- (b) request reinstatement of the appeal.

If reinstatement of the appeal is requested, such request must be accompanied by a supplemental appeal brief, but no new amendments, affidavits (37 CFR 1.130, 1.131 or 1.132) or other evidence are permitted. See 37 CFR 1.193(b)(2).

Drawings

1. The filing of the formal drawings on 11/30/00 is acknowledged.

Claim Rejections - 35 USC § 112

2. Claim 12 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The term "the mechanism" lacks proper antecedent basis.

Claim Rejections - 35 USC § 103

3. Claims 1, 6-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over by Xia et al (Adv. Mater.1996) in view of Kumar (U.S. Patent No. 5512131).

Xia discloses a method for forming at least one patterned layer on a substrate comprising the steps of:

- providing a rotatable stamp ("PMDS" stamp, Fig. 1a) having relief geometries (p.1015, lines 6-10) on its surface to define a stamping surface;
- applying ink ("ink solution" p.1016, first column, line 13) to the surface of the rotatable stamp to define an inked stamping surface;
- rotating the rotatable stamp as the substrate (Silicon) is placed in contact with the stamp to impress an inked pattern ("SAM", Fig. 1b) on the substrate as defined by the inked stamping surface; and
- patterning the substrate by etching material ("selective wet etching", Fig. 1c) from the substrate, wherein the inked stamping surface guides the etching in a geometry to define the patterned layer useful in fabricating an electronic device.

As to claim 1, Xia does not explicitly disclose to remove the inked pattern from the substrate. Kumar teaches a similar method of patterning a substrate by applying an inked pattern ("SAM"), etching using the inked pattern as an etch mask, and then removing the inked pattern (Example 3, col.19, lines 29-31). Therefore, it would have been obvious to one with ordinary skill in the art to remove the inked pattern in the method of Xia because it is conventional to remove inked pattern layers after etching as taught by Kumar. The removing step is considered to be conventional- masks are routinely removed after etching because they do not form a part of the final product.

As to claims 6-7, 11, the substrate is a multi-layered film of titanium adhesive layer and gold or silver metal layer.

As to claim 8, Xia discloses to use an aqueous ferricyanide solution for the etching step (p.1016, second column, lines 1-4).

As to claims 9 and 10, Xia discloses to form an exposed region where no ink is present and a protected region on the substrate where ink covers the substrate, and that the step of patterning comprises etching the metallic layer from the substrate at the exposed region (Fig. 1c).

As to claim 12, Kumar does not disclose how the SAM is removed. Examiner takes official notice that masks are conventionally removed by wet chemical means. It would have been obvious to one with ordinary skill in the art to use a wet chemical means to remove the inked pattern in the modified method of Xia because it is conventional in the art to dissolve masks that are no longer needed in the final product.

4. Claims 1, 3-12, 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over by Xia et al (Adv. Mater. 1996) in view of Biebuyck et al (U.S. Patent No. 5,925,259) and Kumar (U.S. Patent No. 5512131).

The discussion of modified Xia from above is repeated here. As to claims 3 and 4, Xia does not disclose how the relief geometries are formed. Biebuyck teaches a useful method for forming relief geometries in a rotatable roller ("stamp" 25, col.3, line 3). The relief geometries are formed by:

- (a) casting a liquid onto a surface having relief geometries 252 thereon (coating the PDMS film, col. 6, line 50);
- (b) solidifying the liquid to define a solid film (PMDS, the curing step, col.6, lines 50-51); and
- (c) lifting the solid film from the surface and bonding to the member 251 (col.6, liens 51-52).

Biebuyck does not disclose in step c of claim 3 that the member 251 is rolled over the solid film. However, it would have been obvious to one with ordinary skill in the art to roll the member over the film when lifting it from the surface in the method of Biebuyck because Biebuyck teaches that the member can be in the form of a roller, and when a roller is used, it is most easily processed by rolling.

It would have been obvious to one with ordinary skill in the art to use the modified method of Biebuyck to form the relief surfaces in the method of Xia because Biebuyck teaches that this is an efficient way to form relief surfaces for transferring liquid from a rotatable stamp to a substrate.

As to claim 5, Xia does not disclose to expose the elastomeric film to oxygen plasma before the member is rolled over the film. Examiner takes official notice that it is conventional in the art to plasma etch, for example by oxygen plasma etching, a surface in order to improve the bonding properties of the surface to a subsequent surface. It would have been obvious to one with ordinary skill in the art to oxygen plasma etch the surface in the modified method of Xia because etching is a conventional technique to improve surface bonding properties.

As to claim 19, see col.10 line 64 of Biebuyck.

Response to Appeal Brief

5. Claim 12 is rejected under 35 U.S.C. 112, second paragraph. Claims 1, 6-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over by Xia et al (Adv. Mater.1996) in view of Kumar (U.S. Patent No. 5512131). Claims 1, 3-12, 19 are rejected under 35 U.S.C. 103(a) as

being unpatentable over by Xia et al (Adv. Mater. 1996) in view of Biebuyck et al (U.S. Patent No. 5,925,259) and Kumar (U.S. Patent No. 5512131).

Response to Arguments

Applicant's arguments filed 7/27/01 have been fully considered but they are not persuasive. Kumar is now applied to show that it is conventional to remove patterned ink layers (etch masks) after etching.


Applicant argues that Biebuyck teaches that masks should be avoided. Biebuyck is a secondary reference and is not relied upon to teach masking. The primary reference, Xia, teaches masking.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anita K Alanko whose telephone number is 703-305-7708. The examiner can normally be reached on Tuesday-Friday, 8:30 am-2:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on 703-308-4333. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9057 for regular communications and 703-305-3599 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.


Anita Alanko

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Primary Examiner
Art Unit 1746

AKA

September 21, 2001